

# OWNER'S MANUAL

## DIRECT STEAM KETTLES PEDESTAL & TRI-LEG

### PEDESTAL MODELS:

F-20P (*Stationary*)  
F-30P (*Stationary*)  
F-40P (*Stationary*)  
F-60P (*Stationary*)  
F-80P (*Stationary*)  
F-100P (*Stationary*)  
FT-20P (*Tilting*)  
FT-30P (*Tilting*)  
FT-40P (*Tilting*)  
FT-60P (*Tilting*)  
FT-80P (*Tilting*)  
FT-100P (*Tilting*)

### TRI-LEG MODELS:

F-20L (*Stationary*)  
F-30L (*Stationary*)  
F-40L (*Stationary*)  
F-60L (*Stationary*)  
F-80L (*Stationary*)  
F-100L (*Stationary*)  
FT-20L (*Tilting*)  
FT-30L (*Tilting*)  
FT-40L (*Tilting*)  
FT-60L (*Tilting*)  
FT-80L (*Tilting*)  
FT-100L (*Tilting*)



**MARKET FORGE**  
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# INTRODUCTION

The Market Forge Direct Connected Steam Jacketed Kettle is a steam operated pressure vessel designed for cooking. It consists of a welded satin finish of stainless steel (*type 304*) kettle with double wall construction, forming a surrounding chamber around the kettle into which steam is introduced as a source of heat for cooking. Steam input plumbing is equipped with a manual control valve.

Unit is mounted on stainless steel tubular tri-legs. Each leg is fitted with a four hole adjustable flange foot for securing the kettle to the floor.

Unit is also equipped with a tangent draw-off valve with heat resistant handle for the removal of kettle contents and a condensate return assembly that permits removal of excessive condensate. A two piece, hinged lid covers the kettle opening.

Operation is by direct steam at a minimum of 5 PSI ( $0.4\text{kg/cm}^2$ ) and a maximum of 55 PSI ( $3.9\text{kg/cm}^2$ ).

## INSTALLATION INSTRUCTIONS

### RECEIVING:

The kettle is shipped strapped and bolted to a skid and covered by a carton which is nailed to the skid. The packing materials must be carefully removed prior to installation. Inspect each unit. If any damage has been incurred during shipment, report same within two days to both the carrier and Market Forge Ind., Inc.

### INSTALLATION:

1. Select a location to provided drainage directly below the draw-off valve.
2. Mark hole location through flange adjustable feet.
3. On marked hole locations, drill holes and insert expansion shields to accommodate 5/16" size lag bolts, 4 bolts per foot.
4. Level unit in proposed location by turning adjustable flange feet.
5. Bolt down unit and seal with Silastic or other equivalent sealing compound.

**NOTE:** Sealant must be applied not only to bolt heads, but also around flange feet making contact with the floor surface. This application fulfills NSF Requirements.

6. Connect steam line to kettle. Ensure that line is clean and checked for foreign matter and that a

steam control valve strainer is fairly convenient to kettle.

7. Connect kettle condensate return line to drain.

**WARNING:** If incoming steam pressure is greater than kettle maximum operating pressure, then a pressure reducing valve MUST be installed in the steam line.

A steam line pressure gauge is also recommended to determine the actual amount of steam entering the kettle.

**NOTE:** If large amounts of water accumulate in steam line, install one or more ball float traps in the line to eliminate water.

### INSTALLATION CHECK OUT:

1. Fill kettle part way with water.
2. Turn steam supply valve on slowly.
3. Pull safety valve lever. Observe that steam escapes freely.

**WARNING:** Stay clear of exhaust from valve outlet when checking safety valve.

4. Observe that water comes to a boil in the kettle. Allow approximately 2 to 5 minutes per gallon of water.
5. Close steam supply valve.

# OPERATING INSTRUCTIONS

1. Close draw-off valve.
2. Place food to be cooked into kettle.
3. Slowly turn steam control valve counter-clockwise (*ON*) to full open position.
4. Slowly open pressure relief valve (*rear of kettle*) to allow all air to escape.

**WARNING:** Stay clear of relief valve outlet during step 4 to avoid scalding.

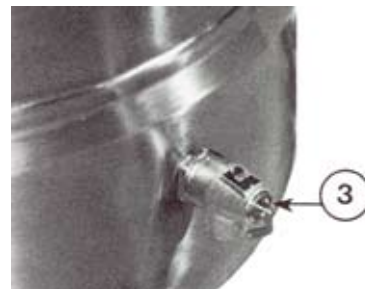
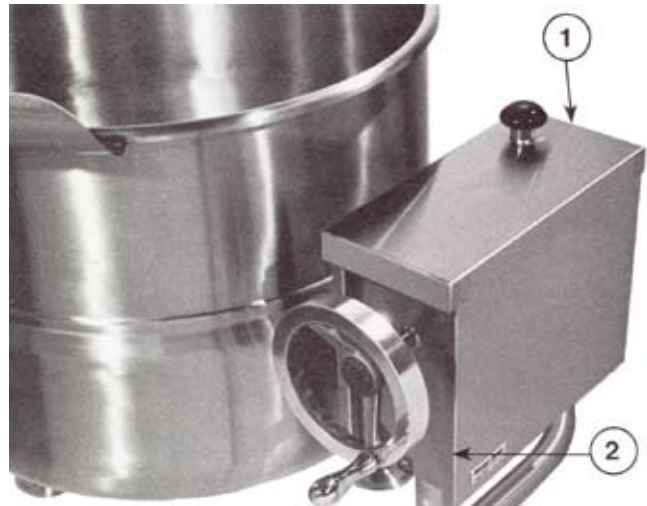
5. Adjust steam control valve depending on type of food prepared.

**NOTE:** If water or food does not boil in 3-4 minutes per gallon, check incoming pressure to determine whether it is adequate to operate the kettle efficiently.

6. When cooking is finished, turn off steam by turning steam control valve clockwise.
7. Pour Finished product from kettle using either tilt wheel (*wheel is equipped for tilting models only*) or draw-off valve. Be careful to avoid splashing.
8. Add water to kettle for cleaning purposes.
9. Wash kettle thoroughly (*see daily cleaning instructions*).

## CONTROLS:

1. Steam Control Valve
2. Tilt Wheel
3. Pressure Relief Valve (*rear of kettle*)
4. Draw-Off Valve (*not shown*)



# GENERAL INFORMATION

**STATIONARY PEDESTAL:**

F- 20P, F- 30P , F- 40P, F- 60P, F- 80P & F- 100P. Kettle will be constructed of welded satin finish stainless steel, type 304. A double wall kettle interior will form a steam jacket around the lower 2/3 of the kettle. The kettle bottom will be of elliptical design for superior heat circulation.

Unit will be mounted on a stainless steel pedestal base. Pedestal base will have four holes evenly spaced for securing unit to the floor.

Convenience features will include a hinged counter-balanced stainless steel cover and a 1 1/2" (38mm) sanitary draw-off valve with strainer and heat resistant handle.

Unit will include as standard a Steam Control Kit (CKT-1).

**OPERATION WILL BE BY:**

Direct steam at 15–50 PSI (1.0–3.5 kg/cm<sup>2</sup>). 1/3 BHP required per kettle. Over 50 PSI (3.5 kg/cm<sup>2</sup>), a pressure reducing valve is required.

**STEAM FLOW REQUIREMENTS:**

34 lbs. (15.5 kg) steam per hour or 1 BHP per 20 gallons (76 liters) of kettle capacity.

MODEL	GALLONS	BHP/HOUR	(lbs) STEAM/HOUR
F- 20P	20/76L	1.0	34.5
F- 30P	30/114L	1.5	52.0
F- 40P	40/152L	2.0	69.0
F- 60P	60/227L	3.0	103.5
F- 80P	80/303L	4.0	138.0
F- 100P	100/380L	5.0	172.5

**TILTING PEDESTAL:**

FT- 20P, FT- 30P , FT- 40P, FT- 60P & FT- 80P. Kettle will be constructed of welded satin finish stainless steel, type 304. A double wall kettle interior will form a steam jacket around the lower 2/3 of the kettle. The kettle bottom will be of elliptical design for superior heat circulation.

Mounting frame of tubular stainless steel pipe will be formed in a yoke fixed to a cylindrical pedestal base. Pedestal base will have four 7/16" (11mm) holes evenly spaced for securing unit to floor.

Trunnion mounts will support the kettle to allow tilting. Tilting mechanism with high position hand wheel and steam control valve will be mounted on the right side frame member. Gearbox housing and hand wheel will be of stainless steel. Operation will be self-locking for positive stop action.

**OPERATION WILL BE BY:**

Direct steam at 15-35 PSI (1.0-2.5 kg/cm<sup>2</sup>). Over 35 PSI (2.5 kg/cm<sup>2</sup>), a pressure reducing valve is required.

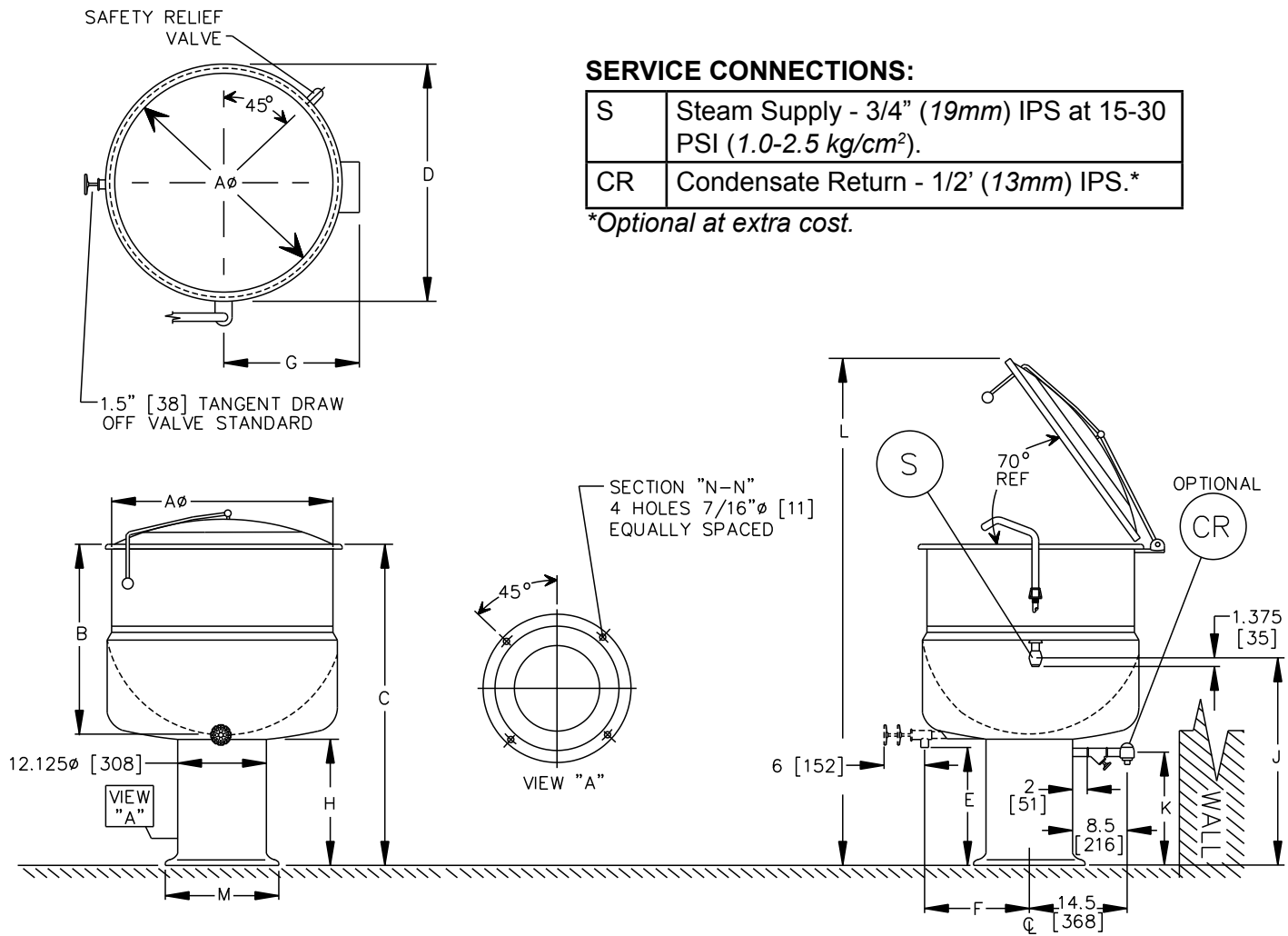
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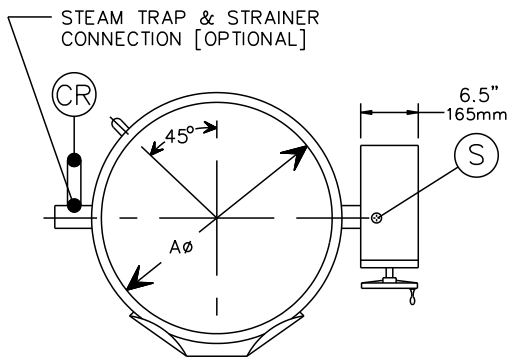
# GENERAL INFORMATION

MODELS	A	B	C	D	E	F	G	H	J	K	L	M	
F-20P	21 533	18 457	37 940	22.75 578	17 432	11.75 298	15.5 394	18.75 476	26 660	13.5 419	59.5 1511	17.25 438	Inches mm
F-30P	24 610	20 508	37 940	25.75 654	15 381	12.5 318	16.5 419	16.75 424	25.5 948	14.5 368	62.5 1588	17.25 438	Inches mm
F-40P	26 660	22.5 571	37 940	27.75 704	12.5 318	13 330	17.5 445	14.25 362	24 610	12 305	63.5 1613	17.25 438	Inches mm
F-60P	30 762	25.5 648	40.5 1029	31.25 794	12.5 318	13.5 343	19.5 495	14 356	24.75 629	12 305	71 1803	17.25 438	Inches mm
F-80P	33 838	28 711	42.5 1080	34.75 883	12.5 318	15.25 362	21 533	14 356	25 635	12 305	77 1956	19.25 489	Inches mm
F-100P	36 914	30 762	44.5 1130	37.25 946	12.5 318	15 381	22.5 572	14 356	26.75 679	12 305	83 2108	19.25 489	Inches mm



# GENERAL INFORMATION

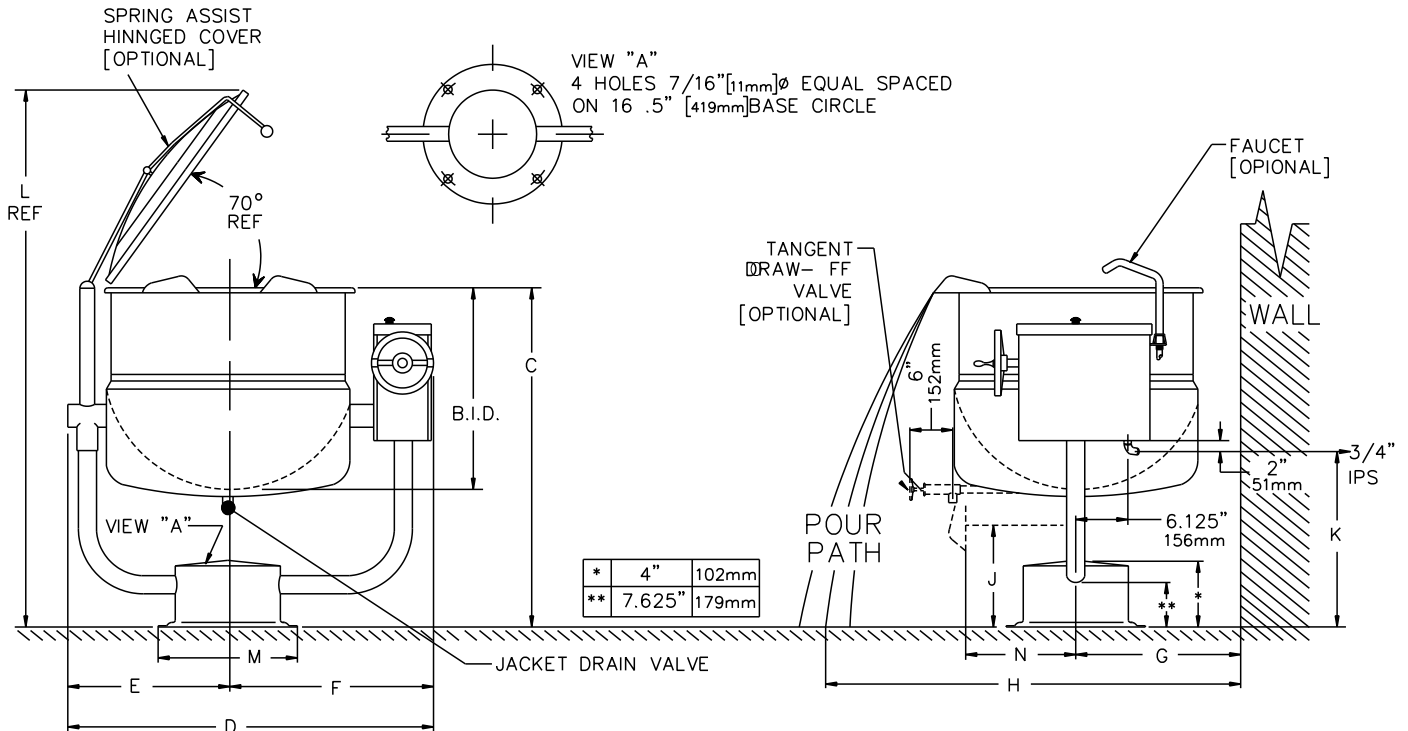
MODELS	A	B	C	D	E	F	G	H	J	K	L	M	
FT-20P	21	18	37	22.75	15	20	13.5	41	15.25	20.5	59.5	17.25	Inches
	533	457	940	578	381	508	343	1041	387	521	1511	438	mm
FT-30P	24	20	37	25.75	16.25	21.75	14	43	13.25	20	62.5	17.25	Inches
	610	508	940	654	413	553	356	1092	337	508	1587	438	mm
FT-40P	26	22.5	37	27.75	17.25	22.75	15.5	45	10.75	18.5	63.5	17.25	Inches
	660	571	940	704	438	578	394	1143	273	470	1613	438	mm
FT-60P	29.5	26	42.5	42.5	19	24.5	17.5	48	10.25	19.25	71.5	17.25	Inches
	749	660	1080	1080	483	622	445	1219	260	489	1816	438	mm
FT-80P	33	28	42.5	34.75	20.625	26	19	52	9.75	20.5	76	19.25	Inches
	838	711	1080	883	524	660	483	1067	248	521	1930	489	mm



## SERVICE CONNECTIONS:

S	Steam Supply - 3/4" (19mm) IPS at 15-30 PSI (1.0-2.5 kg/cm <sup>2</sup> ).
CR	Condensate Return - 1/2" (13mm) IPS.*

\*Optional at extra cost.



# GENERAL INFORMATION

**STATIONARY TRI-LEG:**

F- 20L, F- 30L , F- 40L, F- 60L, F- 80L & F- 100L.  
Kettle will be constructed of welded satin finish stainless steel, type 304. A double wall kettle interior will form a steam jacket around the lower 2/3 of the kettle. The kettle bottom will be of elliptical design for superior heat circulation.

Tri-leg mounting frame of stainless steel pipe will conceal the steam piping. Each leg will be fitted with a four-hole adjustable flange foot for securing to the floor.

A sealed stainless steel tilting mechanism will permit the kettle to tilt forward a full 90o for complete emptying. The tilting mechanism will be self-locking for positive stop action. Steam control valve will be mounted on control box. Unit will include as standard a Steam Control Kit (CKT-1).

**OPERATION WILL BE BY:**

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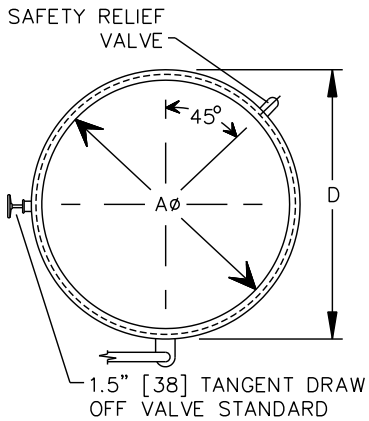
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FT- 100L	100/380L	5.0	172.5

# GENERAL INFORMATION

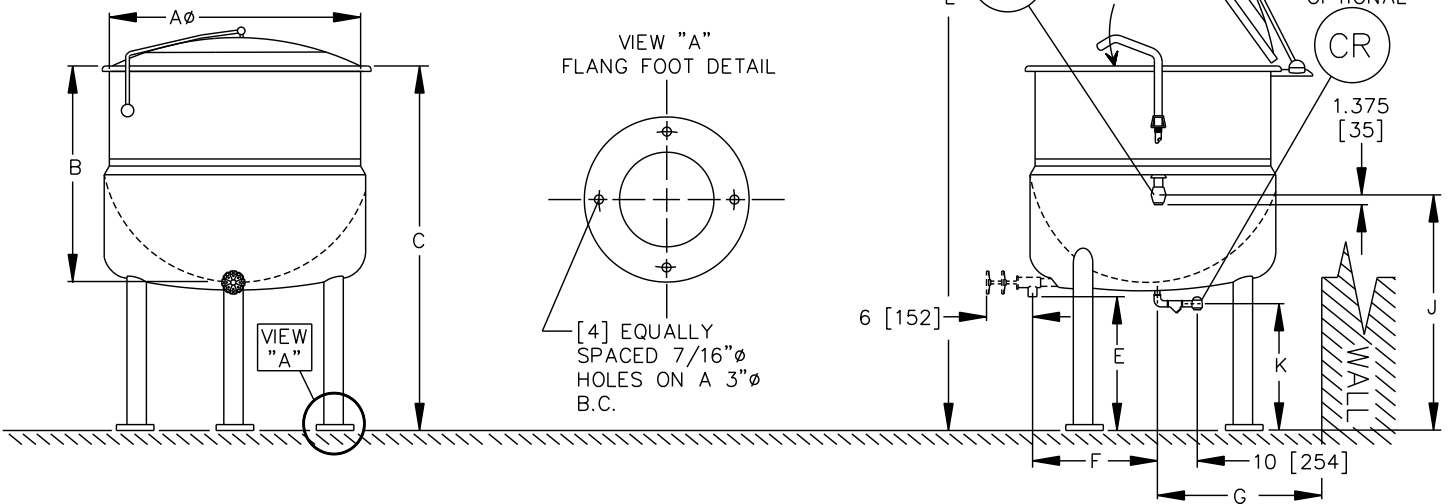
MODELS	A	B	C	D	E	F	G	H	J	K	L	
F-20L	21 533	18 457	37 940	22.75 578	16.875 429	12 305	16.5 419	41 1041	17.5 445	16.375 416	59.5 1151	Inches mm
F-30L	24 610	20 508	37 940	25.75 654	14.875 378	12.75 324	16.5 419	42.5 1080	20.5 521	14.375 365	62.5 1558	Inches mm
F-40L	26 660	22.5 571	37 940	27.75 704	12.375 314	13.25 337	17 432	45 1143	22.5 572	11.875 302	63.5 1613	Inches mm
F-60L	30 762	26 660	42.5 1080	31.25 794	12.375 314	13.75 349	19 483	48.5 1232	25.75 654	11.875 302	71 1803	Inches mm
F-80L	33 838	28 711	42.5 1080	45.75 1162	12.375 314	14.5 368	20.5 521	52 1334	29.25 743	11.875 302	77 1956	Inches mm
F-100L	35.5 802	30 762	44.5 1130	37.25 946	12.375 314	15.25 387	22 559	31.75 806	31.75 806	11.875 302	83 2108	Inches mm



### SERVICE CONNECTIONS:

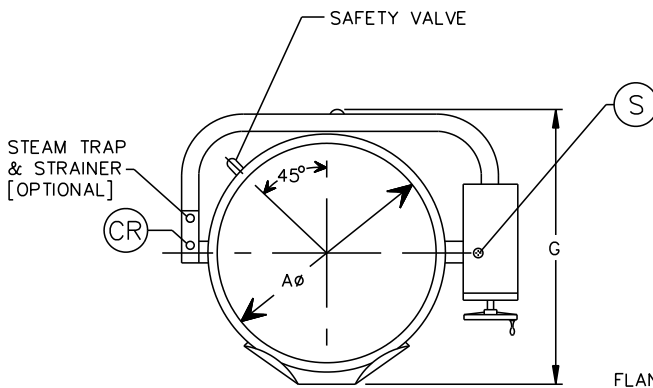
S	Steam Supply - 3/4" (19mm) IPS at 15-30 PSI (1.0-2.5 kg/cm <sup>2</sup> ).
CR	Condensate Return - 1/2' (13mm) IPS.*

\*Optional at extra cost.



# GENERAL INFORMATION

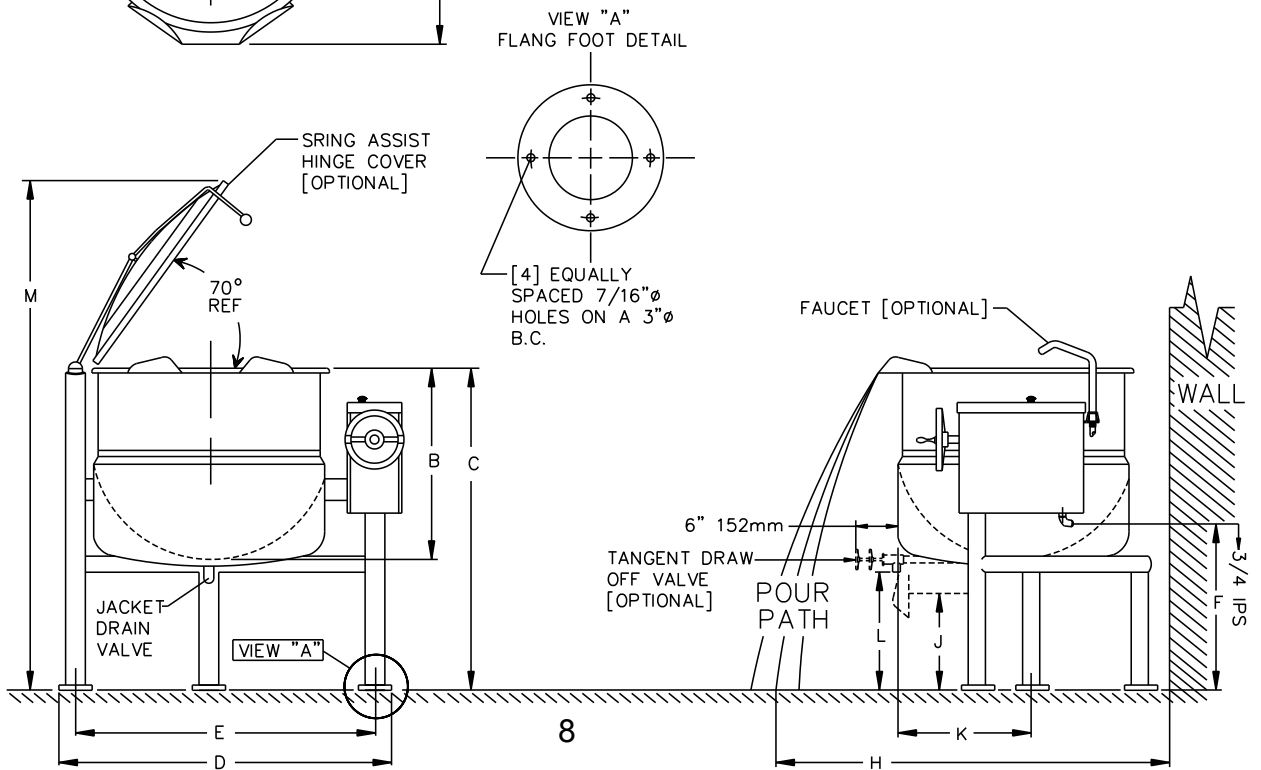
MODELS	A	B	C	D	E	F	G	H	J	K	L	M	
FT-20L	21 533	18 457	37 940	34.5 885	28.5 724	22 559	28.5 724	41 1041	15.25 387	12 305	16.875 440	59.5 1512	Inches mm
FT-30L	24 610	20 508	37 940	37.75 960	31.5 800	20.75 527	30 762	42.5 1080	13.25 337	12.5 317	14.875 390	62.5 1588	Inches mm
FT-40L	26 660	22.5 571	37 940	39.75 1010	33.5 850	20.25 514	32 813	45 1143	10.75 273	13 330	12.375 314	64 1626	Inches mm
FT-60L	29.5 749	26 660	42.5 1080	43.25 1100	37 940	18.75 476	35.75 910	48.5 1232	10.25 260	13.75 350	12.375 314	71.5 1816	Inches mm
FT-80L	33 838	28 711	42.5 1080	45.75 1185	40.5 1030	20 508	40 1016	52 1334	9.75 248	14.5 368	12.375 314	76 1930	Inches mm
FT-100L	35.5 802	30 762	44.5 1130	48.5 1232	42.25 1073	22 559	42 1066	55 1397	8.5 217	15.5 390	12.375 314	83 2108	Inches mm



## SERVICE CONNECTIONS:

S	Steam Supply - 3/4" (19mm) IPS at 15-30 PSI (1.0-2.5 kg/cm <sup>2</sup> ).
CR	Condensate Return - 1/2" (13mm) IPS.*

\*Optional at extra cost.



# MAINTENANCE

## **CLEANING:**

As with cleaning food soil from any cookware, an important part of kettle cleaning is to prevent foods from drying on. For this reason, cleaning should be completed immediately after food is removed from kettle. If unable to thoroughly clean kettle immediately, fill kettle with warm water and mild detergent. Allow kettle to soak until thorough cleaning can be completed.

1. Wash kettle and cover with mild detergent and lukewarm water, using a nylon brush. If food is stuck to surface use a little heat to loosen the food.

**CAUTION:** NEVER scrape the inside of the kettle with metal tools, steel scouring pads or abrasive cleaners. Scratches will result in damage and inappropriate appearance to the kettle and make it harder to clean and maintain in a sanitary condition.

2. Drain kettle and remove disc in draw-off valve. Rinse and dry.
3. Disassemble and clean draw-off valve as follows:
  - a. Turn the handle counterclockwise.

- b. Loosen hex nut on end of handle by turning it counterclockwise.
- c. Remove valve carefully.
- d. Wash draw-off area thoroughly using nylon brush.
- e. Rinse and dry.
- f. Reassemble by reversing these steps.

## **INSPECTION CHECKS:**

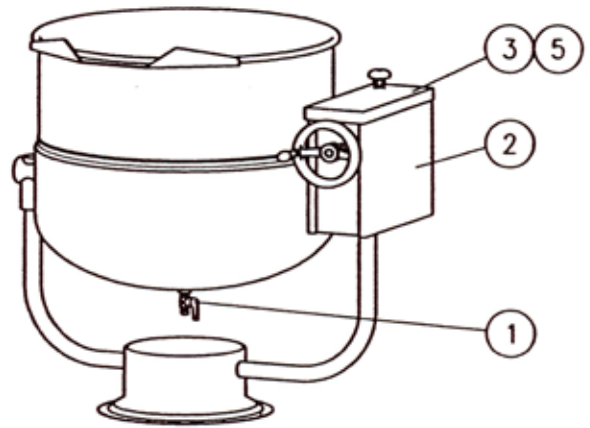
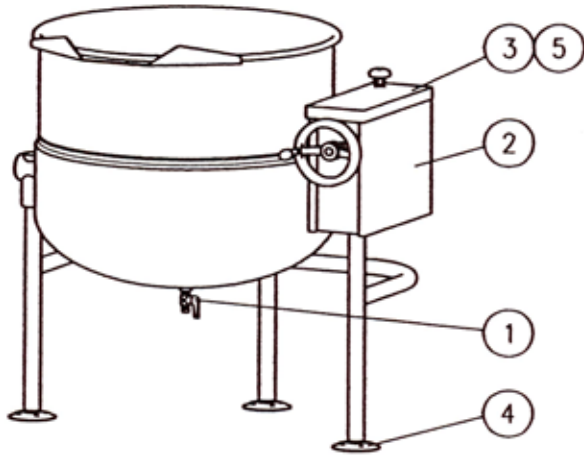
1. Check safety valve daily. With steam supply valve open, pull safety valve control lever. Observe that steam escapes.

**WARNING:** Do not stand in front of the valve outlet when checking safety valve.

2. Inspect operating valve occasionally to ensure that the packing and valve seats are in proper condition.
3. Check and clean line strainer in steam trap assembly as required.

# ILLUSTRATED PARTS LIST

## Operation

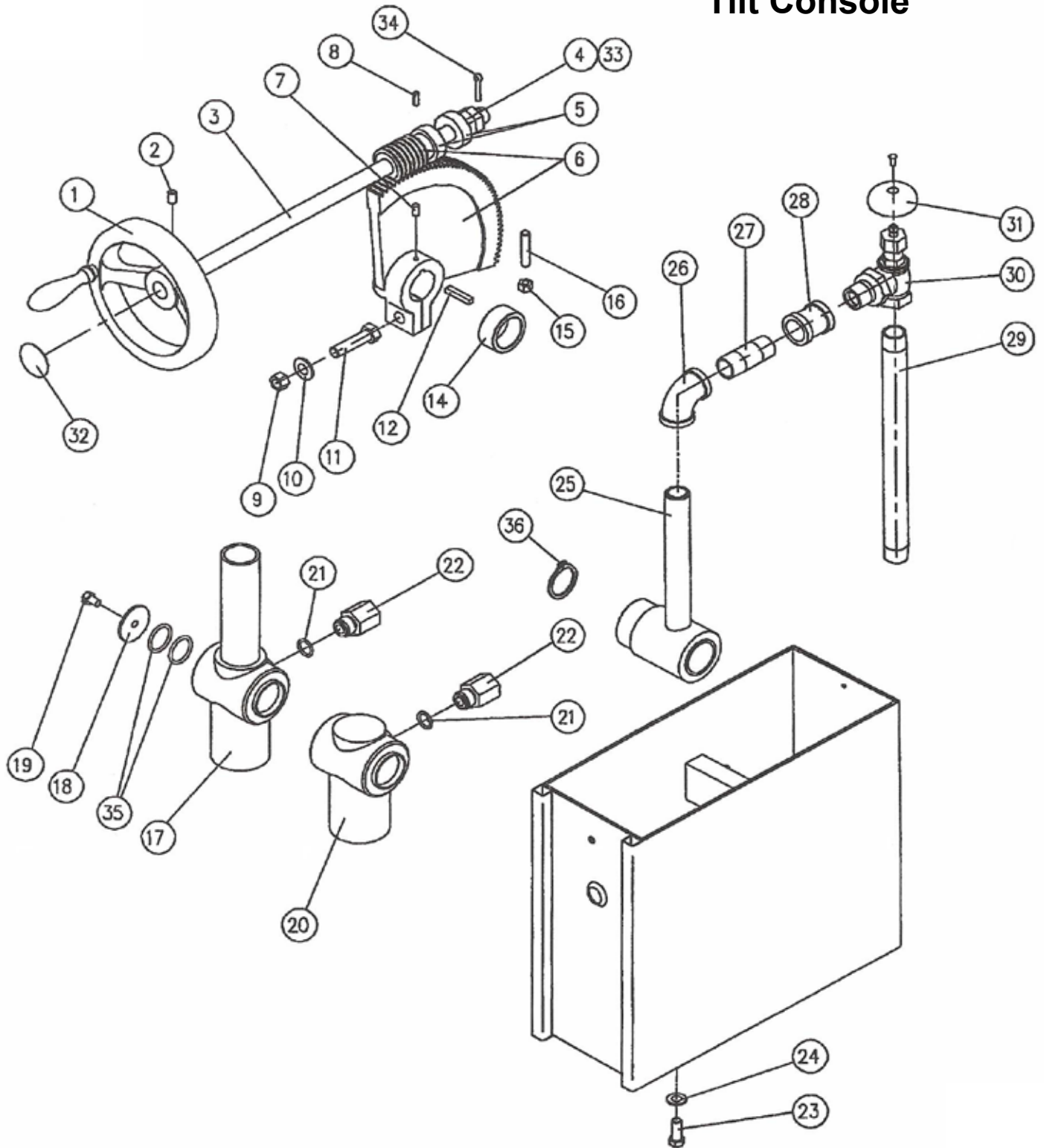


ITEM	PART NO.	DESCRIPTION	QTY.
1	97-5589	Ball Valve	1
2	97-6491	Tilt Console (see page 11)	1
3	97-6492	Console Cover	1
4	97-5032	Adjustable Foot	3
5	~NPN~	Screw 10-32 x 1/2	1
6	97-5045	Relief Valve, 35 PSI*	1
	97-5697	Relief Valve, 50 PSI*	1
7	97-6368	Down Tube	1

\* Not shown.

# ILLUSTRATED PARTS LIST

## Tilt Console



## ILLUSTRATED PARTS LIST

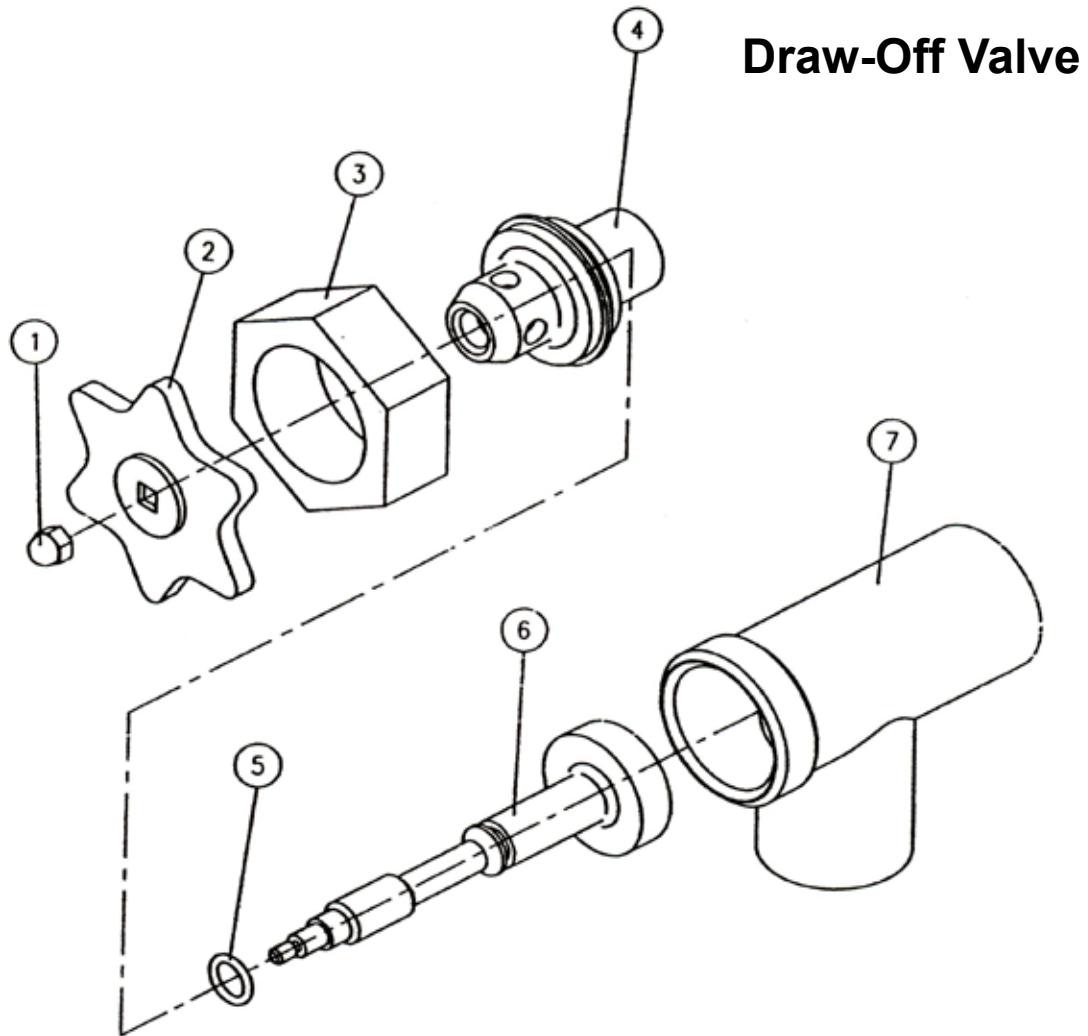
ITEM	PART NO.	DESCRIPTION	QTY.
1	97-5090	Hand Wheel	1
2	97-5092	Set Screw, 3/8 - 16 x 1/2	1
3	97-5092	Tilt Shaft	1
4	97-5416	Set Screw, 1/4 - 20 x 1/2	1
5	97-5093	Tension Pin, 3/16 Ø x 5/8	1
6	97-5096	Jam Nut	2
7	97-5095	Thrust Bearing	2
8	97-5094	Worm Gear	1
9	97-5098	Segment Gear	1
**10	~NPN~	Nut, 1/2 - 13	1
**11	~NPN~	Lockwasher, 1/2	1
**12	~NPN~	Bolt, 1/2 - 13 x 2	1
13	97-6493	Key, 1/4"	1
14	97-5099	Spacer	1
15	97-5584	Nut, 3/8 - 16	1
16	97-5583	Set Screw, 3/8 - 16 x 1 - 3/4	1
17	97-5179	Outbore Bearing Complete with Extension <i>(Used on Spring Assist Cover Only. Specify Model)</i>	1
18	97-5368	Stainless Steel Washer	1
19	97-5883	Bolt	1
20	97-5177	Outbore Bearing	1
21	97-5366	O-Ring	1
22	97-5367	Brass Fitting	1
**23	~NPN~	Bolt, 3/8 - 16 x 1	4
**24	~NPN~	Lockwasher, 3/8	4
25	97-5171	Block Bearing	1
26	97-5877	90° Elbow, 3/4"	1
27	97-5878	Nipple, 3/4 x 2 - 1/2	1
28	97-5879	Coupling, 3/4 x 2 - 1/2	1
29	97-6495	Pipe - Steam Supply, 3/4 x 12 - 1/2	1
30	97-5030	Control Valve, 3/4"	1
31	97-5306	Control Valve Knob	1
32	97-6494	Decal - Tilt	1
**33	~NPN~	Washer, 3/4 ID x 1 - 1/4 OD	1
**34	~NPN~	Cotter Pin, Stainless Steel, 3/16 x 1	1
**35	~NPN~	"O" Ring	1
**36	~NPN~	Retaining Ring	
**37*	~NPN~	Label - Service Warning	

\* Not shown.

12

\*\* Item can be found at local hardware store.

## ILLUSTRATED PARTS LIST



ITEM	PART NO.	DESCRIPTION	QTY.	ITEM	PART NO.	DESCRIPTION	QTY.
-	<a href="#">97-5062</a>	1 1/2" Draw-Off Valve Assy.			<a href="#">97-5073</a>	Bonnet, 3" Draw-Off	1
-	<a href="#">97-5063</a>	2" Draw-Off Valve Assy.		5	<a href="#">97-5077</a>	O-Ring, 1 1/2" Draw-Off	1
-	<a href="#">97-5065</a>	3" Draw-Off Valve Assy.			<a href="#">97-5078</a>	O-Ring, 2" Draw-Off	1
1	<a href="#">97-5065</a>	Wing Nut, 10-24 UNC	1		<a href="#">97-5079</a>	O-Ring, 3" Draw-Off	1
2	<a href="#">97-5566</a>	Handle, Stainless Steel	1	6	<a href="#">97-5074</a>	Stem Assy., 1 1/2" Draw-Off	1
3	<a href="#">97-5068</a>	Gland Nut, 1 1/2" Draw-Off	1		<a href="#">97-5075</a>	Stem Assy., 2" Draw-Off	1
	<a href="#">97-5069</a>	Gland Nut, 2" Draw-Off	1		<a href="#">97-5076</a>	Stem Assy., 3" Draw-Off	1
	<a href="#">97-5070</a>	Gland Nut, 3" Draw-Off	1	7	<a href="#">97-6496</a>	Valve Body, 1 1/2" Draw-Off	1
4	<a href="#">97-5071</a>	Bonnet, 1 1/2" Draw-Off	1		<a href="#">97-6156</a>	Valve Body, 2" Draw-Off	1
	<a href="#">97-5072</a>	Bonnet, 2" Draw-Off	1		<a href="#">97-6497</a>	Valve Body, 3" Draw-Off	1